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ABSTRACT

The primary role of education is the production of positive changes in the learner. Teachers make decisions regarding effective experiences conducive to helping students change their behaviors. Evaluation provides evidence to help teachers and students attain desired goals of instruction and the objectives of education. Four types of evaluation are appropriate for four major types of decisions in education: context evaluation, input evaluation, process evaluation, and product evaluation. Evaluation instruments offer an operational definition of the matrix of content and behaviors. The instructional system design is a decision-making operation involving decisions about material to be learned, by whom, when, where, how learning should be evaluated and improved, and what resources should be involved in preparing and providing for learning. The learning and evaluation process is presented in diagramatic form. (DWH)

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Assessing Expected Outcomes of Education: What Every Student Should Know and How to Assess It

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Summary

Assessing expected outcomes of education: what every student should know and how to assess it:

Paper argues that students who undergo an educational process should be different from those who have not had the programme; but there are changes arising out of maturation; of growth of environment and out of school. The paper concentrates on changes produced by the school i.e. through instruction. Certain changes are possible and desirable and others are desirable but not easily attained. Learning experiences should be provided in such a way as to make it possible to produce given educational objectives.

Given that one of the purpose of education is to impart specific knowledge, attitudes and skills, the paper goes on to examine what it is that we assess; why we assess and how we go about assessing what students are expected to know. In examining what we assess, the paper analyses to what extent educational objectives are achieved through the assessment of educational policies and the assessment of the internal effectiveness of an educational system. In examining the need for assissment, the paper identifies four types of evaluation for four major types of decisions in education: context evaluation, input evaluation; process evaluation, and product evaluation.

The paper then looks at how the assessment of expected outcomes of education is carried out. Three generally used models for assessing academic attainment through popularly known tests and examinations are analysed, viz: the one-shot model; the longitudinal and the cross-sectional models. The paper concludes by arguing that the main task of education process is to change the learners in desirable ways. To this end therefore, the aims and long term objectives of educational systems should be clearly defined so as to help students change in the right direction.

Assessing Expected Outcomes of Education: What Every Student Should Know and How to Assess It

*Peter H. Chiwona

I. Introduction

The concept of "education" like that of "freedom" is shrouded with complexities and difficulties. To some it is not easily defined because of what it connotes; and to others, while education is intimately bound to the culture of the community it serves, what education has in common with development after taking these cultural differences into account is "teaching" and "learning". Thus to "educate" means etymologically "to educe or draw out of a person something potential and latent; it means to develop a person morally or mentally so that he is sensitive to individual and social choices and able to act on them; it means to fit him for a calling by systematic instruction; it means to train, to discipline or form abilities. The act or process of achieving one or more of these objectives is as a first approximation, what education is about.[1/] Viewed in this way, therefore, education is a process which changes the learner's behaviour in that each programme, course or unit of education aims at bringing about some significant changes in the students.

Basically, students who undergo an educational process should be different at the end of a programme from those who have not had that programme. Admittedly, there are changes that arise out of maturation, changes arising out of growth, and others out of varied experiences from the family, the environment and the school. In this paper, however, our concern is with changes produced by education and in the last analysis determined by school, its curriculum and its instruction. The problem of instruction and its direct outcomes are of concern to many of us because what children learn in school derives from the nature of their experience in the school setting in which the teacher not only imparts but facilitates the students' acquisition of symbolic skills, knowledge, information and national tradition. Further, our concern is not just the traditional symbolic outcomes, but normative outcomes that emerge through pupils experience in coping with the sequences of situations whose character is defined by the structural properties of school. These outcomes are formulated not in terms of the explicit goals of the schools peculiar relevance to family life, the community and society, but to the occupational and political worlds.

There is no doubt that schooling forms an important linkage between the family life of children and the public life of adults; it provides experiences conducive to learning the principles of conduct and patterns of behaviour appropriate to adulthood; and that it contributes to the acquisition of knowledge and skills through instruction. But these

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1/ UNESCO, International Standard Classification of Education (Abridged Edition) Paris, July 1975 p.2.

developmental changes produced by the school constitute only part of the components of the total outcomes of one's life. What is more important is that although education from school can produce significant changes in students, not all learners will change in exactly the same way and to the same level or degree because not all teachers, curricula and schools will be equally effective in changing their students or will do so in the same way or manner and to the same level or degree. It is therefore not possible within the title and scope of this paper that every student will know what is expected of him to know. This paper will thus examine what is educationally possible and desirable and how best these educational objectives can be evaluated.

II. Possible and Desirable Objectives

Given that the primary role of education is to produce changes in learners, it is important that someone has to decide on what changes are possible and what are desirable. This is not an easy matter on deciding what are possible and desirable educational objectives or outcomes because such a decision is not the prerogative of one group or party of people. It involves teachers, students themselves, parents, politicians, curriculum planners, textbook and syllabi writers, the community and the employment world. There is no doubt that both the school, the family and the community provide different experiences for children and students and since experiences are an intermediate step which must be present if people are to learn from them, schooling therefore does bring about additions to the psychological repertoire of learning. It does not replace the prior learning obtained in the family or community. The impact of schooling is one of accretion rather than displacement in as far as individuals remain members of some family unit or community during their whole life: they have always to act in a way that sustains the relationship, and provide means for sustenance and employability.

The question that may be asked is: what are the educational objectives that should be pursued and are they possible of attainment? Certainly the two handbooks of the "Taxonomy of Educational Objectives: Cognitive Domain and Affective Domain" do indicate some of the broad classifications of educational objectives which are possible of educational attainment by students.[1/] However, an educational objective which is possible of attainment by some students is not necessarily possible to all for attainment because of the various factors such as age and level of the learner, the type of previous learning, the level of ability, attitude and interest of the learner, family background, the environment, the teachers, the school setting, facilities available and a whole set of other factors. To a greater extent it is for the

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[1/] Bloom B., Hastings T. J. and Madaus G.: Handbook on Formative and Summative Evaluation of Student Learning McGraw-Hill Book Company, New York (1971) p. 10.

teacher to decide which objectives are possible of attainment and in this respect it is up to the teacher to influence the attainment of such objectives based on his teaching style, his ability, experience and personality. It is worth of note that on the whole the teacher does not represent the major factor nor is he the main factor in determining the objectives which are possible of attainment by students.

On the other hand, an objective which is desirable for particular students is in part dependent on their present characteristics and their goals and aspirations for the future. If it were possible to look into, and read, the seed of time so as to decipher a person's future life, there would be no problem in setting desirable educational objectives for every student. We would be in a position to emphatically say that every student should know this and/or that at the end of each programme, course, or unit, every student should demonstrate these or those outcomes. Life would be much easier. But since it is not possible to look into a person's future life, we can only set objectives which are likely to give the maximum flexibility in making a great variety of possible life decisions. It can be argued that what is desirable for the student may coincide with the greatest range of possibilities available to him in the light of his ability, previous achievement, and personality. Educational objectives must therefore be selected with maximum range of possible developments to cater for an individual's self-fulfilment, for income generating activities and for the pursuance of ideals and service to society.

What is learnt in school is many things to many people and to try to answer this question is but to give a hypothetical answer which considers the outcomes related to the experiences of pupils and tied to their participation in a social setting. Traditionally therefore, our approach to educational process is concerned with the explicit goals of schools as expressed in curriculum content, that is: the cognitive knowledge and skills involved in reading, arithmetic, and the like; subject matter content, national tradition, how to think, vocational skills, citizenship, self-confidence, tolerance, patriotism, co-operation and benevolent attitudes. All these cannot be learnt from school instruction only, because both schools and families instruct children in areas of cognitive development. Some children learn to read and count before coming to school in so far as instruction can be had from mass media, travel, museums, libraries, and personal contacts. In fact, "the greatest teacher of them all is the street."[1/]

What is learnt in school is that students learn to acknowledge that there are tasks they must do alone and do them in that way: they must act by themselves, accept personal responsibility for their conduct, and be accountable for its consequence. They have to perform tasks actively and master the environment according to certain standards of excellence, and they must acknowledge the rights of others to treat them as members of society on the basis of societal norms. In a school

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1/ Brown Claude - Man-Child in the Promised Land Macmillan, New York (1965) p. 43.

setting students must work independently in so far as assignments given warrant personal attention and no help from others, because in the last analysis it is individual assessment of what a person has learnt in school that counts. Hence the rigid administration of tests and examinations to make sure that an individual's output is produced and not an output with others' help or through cheating. The contribution of school to the outcomes of students is that of adapting the learning potential of the pupil to the various skills and knowledge which a pupil must acquire for a productive adult life and employability. The capacity to hold a job or to earn a living involves not just adequate physical capacity but also appropriate intellectual and psychological skills to cope with the demands of the work-world.

And yet by assigning all pupils/students in a school or a class the same or similar tasks to be performed, teachers and educators are in effect making them confront the same set of demands or at least be subjected to same or similar experiences. Secondly, parity of age creates in students a condition of homogeneity according to their developmental stage. Therefore although students may be given similar tasks the outcomes arising out of those tasks will not be the same. Thirdly through yearly promotion based on stringent examinations (especially in Africa) from one grade to another, students cross the boundaries separating one age category or one ability group from another. In the final analysis, what matters is what the student does and learns and not what the teacher does. We should never forget that students will always have different experiences even if the external conditions in which they operate appear to be the same.

As Tyler pointed out some years ago, the problem of selecting learning experiences is one of determining the kinds of experiences likely to produce given educational objectives and how to set up situations which will evoke or provide within the students the kinds of learning experiences desired.[1] Tyler went on to argue that objectives must be stated in such a way as to be helpful in selecting learning experiences. Objectives can be stated as things which an instructor/teacher should do; or stated in listing topics, concepts, generalizations or other elements that can be dealt within the courses; they can be stated in the form of generalized patterns of behaviours; or expressed in forms which identify both the kind of behaviour to be developed in the student and the content or area of life in which this behaviour is to operate.[2] In whatever manner the objectives are stated, whether they are possible or desirable objectives, it is important to select learning experiences that will effectively contribute to the attainment of such objectives. We can therefore select learning experiences that will help students develop skills in thinking; in acquiring information; and in developing social attitudes and interests.

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[1] Tyler, Ralph W. - Basic Principles of Curriculum and Instruction, University of Chicago Press, London Second British Impression 1973 p.65.

[2] Tyler, Ralph W. op.cit. p. 43.

It is the responsibility of teachers/instructors to make various decisions regarding effective experiences conducive to helping students change their behaviours in the desired ways. However, it is the role of evaluation to provide appropriate evidence to help both the teachers and learners attain the desired goals of instruction and the objectives of education. This then brings us to the central issue of assessment and evaluation of expected outcomes of education.

III. Assessment of Expected Outcomes of Education

If we accept the fact that one of the purposes of education is to impart specific knowledge, attitudes and skills, then the purpose around which educational systems should be designed is instructional and that knowing is the purpose around which the educational system should grow. Therefore the inter-action between the learner and the environment through which the learner is making progress towards the attainment of specific knowledge, attitudes and skills is viewed as instruction. An instructional system can be assessed by the degree to which it provides an effective system for the learner, that is, the contribution made to the attainment of desired performance. The development of such an instructional system (i.e. system for learning) is a decision making operation as to what should be learned, how and by whom, when and where, what resources should be involved in preparing and providing for learning; and how learning should be evaluated and improved. It is this last aspect that is our concern in this section of the paper to which we will devote our attention by asking the following basic questions:

(a) What is assessment?
(b) What do we assess?
(c) Why do we assess and
(d) How do we assess?

(a) What is Assessment

Etymologically, the "word 'assess' means 'to sit beside' or 'to assist the judge'." It, therefore, seems appropriate in evaluation studies to limit the term assessment to the process of gathering the data and fashioning them into an interpretable form; judgements can then be made on the basis of this assessment. [1] In this way assessment is often used interchangeably with evaluation and measurement, but when used precisely, it has a narrower meaning than evaluation and broader meaning than measurement. However, whether it is used broadly or precisely, assessment is multirait and multi-method that is, it focuses on a number of variables judged to be important and utilizes a number of techniques to assay them, such as tests, questionnaires,

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[1] Anderson Scarvia B.; Ball Samuel; Murphy Richard T. and Associates: Encyclopedia of Educational Evaluation, Jossey-Bass Publishers San Francisco (1975) p. 27.

interviews, ratings, unobstrusive measures etc. It employs a multi-source techniques of collecting data on the same variable using trainers, teachers, instructors and course records, and uses a multi-judge approach of ratings of the same student performance obtained from several assessers and then judgement pooled together.

Whether we are concerned with the outcomes of education or those of a programme or project, assessment precedes the final decision stage in evaluation, e.g. the decision to continue, modify or terminate an educational programme or course. In fact, assessment is not entirely divorced from decision making because the entire assessment must be planned in the light of possible and plausible alternative decisions. However, in designing a good assessment programme, it is important to identify the range of relevant behaviours and characteristics to be measured; and then secondly to select or design reliable techniques for measuring these behaviours. This brings us to the question of what is to be assessed.

(b) What Do We Assess?

Since evaluation is essentially the process of measuring to what extent educational objectives have been achieved it is necessary to appraise the extent and degree to which these changes have taken place. Such an appraisal should not be done once only but at least twice. Secondly evaluation involves getting evidence about behaviour changes in students so that any valid evidence about behaviours which are considered as educational objectives provides an appropriate method of evaluation. The question however is: whether we should assess or evaluate in terms of objectives, or evaluate the objectives themselves?

It is possible to evaluate the expected outcomes of education by direct reference to the objectives - human, social, pedagogical, cultural, economic, political etc. which the educational system as a whole, or its various sub-systems considered separately, propose to attain. This approach can be used to evaluate educational programmes or courses. It does assume that one can clearly identify the objectives of the educational system but which are usually implicit or couched in very general terms. At the same time it assumes that one can establish indicators or indices be they social or economic, whenever one needs to assess how the objectives laid down have been or are in the process of being attained.

This concept of evaluation, however, appears too limited and therefore an assessment of the value of educational policy must certainly extend to the objectives themselves i.e. we need to assess the extent to which the objectives themselves have been achieved. In this connection, therefore, we need to assess educational policies, educational programmes, and the internal effectiveness of the educational system of a given country.

(i) Assessment of Educational Policies

Assessment of educational policies involves establishing the coherency between, on the one hand, the objectives of the educational system, the means devoted to them and the results gained from them;

and on the other, the main economic and social objectives of a development plan. Looked at this way we can talk of assessment criteria which embrace the means devoted to education and assessed with reference to national resources as a whole; and also the results obtained in the cultural, human, social, economic etc. fields.

In the assessing of educational policies, the four basic concepts of evaluation should never be lost sight of viz:

- Planned significance — $\frac{\text{Planned fulfilment of main goals}}{\text{Estimated total costs}}$
- Planned productivity — $\frac{\text{Planned production targets}}{\text{Estimated direct costs}}$
- Real productivity — $\frac{\text{Real production}}{\text{Real direct costs}}$
- Real significance — $\frac{\text{Real fulfilment of main/sub-goals}}{\text{Real total costs}}$

The point at issue here is that in taking cognizance of these concepts, assessment should make it possible for us to measure the gap between the planned significance and planned productivity on the one hand, and the real productivity and real significance on the other. This also makes it possible to examine the objectives of education and see whether the policy followed is feasible and capable of fulfilment. At the same time we can test the major disquilibria and effectiveness of a policy by reference to its results. In practical terms, if a country's policy is to give primary education to as many children as possible, given that education is neither compulsory nor free, we can assess the effectiveness of such a policy by looking at the actual number of pupils who complete the primary course and compare it with the planned output.

It is necessary, however, to assess the coherence of the objectives of education in relation to the social and economic objectives of a given country i.e. in relation to the indicators of economic and social coherence. The point is that to assess our educational policy, account should be taken of the social and economic factors that have bearings on the outcomes of education. For instance, an index of economic coherence is to be found in the adjustment of the output of the educational system to the manpower needs of the country or to the employability of such output. In terms of social coherence, there is need to assess the fulfilment of educational policy in respect of regional distribution of educational opportunities and facilities and the need for regional distribution of educational facilities in relation to population density.

Further, to the question of "What do we assess?" we find that evaluation studies produce comparative results in terms of specified student outcomes rather than assessing the outcome of each school.

There is always the tendency of comparing students in boarding schools doing better than those in day schools; and the urban students doing better than rural students without actually taking into account the difference in costs. Certainly in the assessment of educational policies, it is worth asking whether greater benefit can be obtained at less the cost; i.e. whether we can attain our educational objectives at less the cost.

(ii) Assessment of the Internal Effectiveness of Educational System

Another important aspect of what to assess is in respect of the various factors operating in an educational system. First, if assessment is to be undertaken with any hopes of success, the educational objectives should be concrete, pertinent, feasible consistent and quantifiable. But since there are a number of factors influencing internal effectiveness of an education system, it is preferable to concentrate on the educational content rather than on non-educative aspects. Attention should be focused on the decisive factors in internal effectiveness such as: pupils themselves; teachers and other staff; curriculum; the administration; the premises; and parents and other clients. Basically, what happens to the pupils is in essence, what happens to the education system itself i.e. the change of behaviours exhibited by the product of the system is in fact the manifestation of the educational system's external and internal effectiveness, because effectiveness of a system means attaining the objectives previously proclaimed. However, while it is relatively easy to measure the aspects relevant to the internal effectiveness, it is not that easy to measure external effectiveness especially when account is taken of the fact that educational objectives must go beyond the too narrow approach of the familiar equation of "education equals employment". Therefore, what we assess must certainly go beyond the expected outcomes and stated educational objectives. This then brings us to the question of why we assess.

(c) The Need for Assessment

Much as we may formulate clear educational objectives, and select and organize learning experiences, the actual teaching involves a number of variables such as the students themselves, environmental conditions, the teacher's personality and his teaching style and the school facilities - all of which have direct influence on the learning outcomes. There is no way in which we can be sure that the expected outcomes will be fulfilled unless we institute within the educational process mechanisms to guide teachers and their teaching towards their desired goals. To make sure that the desired outcomes are attained, there is need to develop evaluation techniques so as to find out how far the learning experience as selected and organized are actually producing the desired results.

We are interested in evaluation as an attempt to describe, appraise and in fact influence the changes which take place rather than to analyse all the processes which bring about that change. In this way

the primary role of evaluation in education is to describe and influence change because evaluation is then considered as the systematic collection of evidence to determine whether in fact certain changes have taken place in the learners as well as to determine the extent or degree to which these changes have occured in individual students. At the same time, evaluation can be viewed as one of the major factors influencing decisions about education or training programmes. To this effect, therefore, we can identify four types of evaluation for four major types of decisions in education viz:

(1) Context Evaluation: In the planning of on-going educational programmes and activities, context evaluation which is diagnostic in nature, helps to discover any discrepancies between programme goals and objectives and the actual impact of educational programmes and then to allow for planning decisions to match the intended and actual outcomes.

(2) Input Evaluation: Since we are concerned with making educational programme goals operational which have been identified and clarified by context evaluation, there is need to assess the optimal utilization of resources in relation to the results. Input evaluation helps us reach such decisions and some of the important issues which demand our concern are: the feasibility of accomplishing the goals and expected outcomes; the availability of strategies for accomplishing such goals and objectives; the potential costs of the various strategies employed to attain the goals and objectives including the advantages and disadvantagies of such strategies and the probabilities of success based on past experience; the optimal utilization of staff and other resources (financial or material) including the utilization of external resources be they for teaching or the administration of various assessment or evaluation techniques.

(3) Process Evaluation: Evaluation and assessment should provide a feedback to the managers, administrators and educators of an educational programme. The focus of such evaluation should include the assessment of interpersonal relationships, teaching logistics, and the adequacy of staff performance and facilities. Process evaluation which in this case is synonymous with formative evaluation, is used to make decisions during the course of the programme.

(4) Product Evaluation: In assessing the extent to which the anticipated outcomes have been achieved we are engaged in product evaluation or summative evaluation. The need for this evaluation is to decide whether to continue or to terminate an educational programme based on the results of our findings. If the gap between the anticipated goals or outcomes and the actual outcomes is too great, we shall be forced to adjust and make necessary changes to the programme; and if it is too small, we are encouraged to pursue the objectives as planned.

Generally, whatever evaluation process we may be engaged in, the primary purpose of assessment is to provide information for decisions about the programme under appraisal and that the evaluation results obtained should be useful not only for improving a programme but for deciding whether to terminate or continue with it. This, however,

presupposes that the process of obtaining evaluation information does meet the appropriate criteria of objectivity, reliability, validity, utility, practicability and ethical responsibility. These criteria are important considering that evaluation is a human judgemental process which is usually applied to the results of programme examinations and through feedback, we can adjust our objectives.

On the other hand, evaluation may be looked at as the final class of the cognitive variables as presented by Bloom in the Taxonomy of Education Objectives. It thus involves a combination of all the give behaviours - of knowledge, comprehension, application, analysis and synthesis. Evaluation then becomes making judgements about ideas, works, solutions, methods, materials etc. on the basis of established criteria and standards. Our problem, however, is that once the need for assessment has been recognized, the question is how to set about it.

In setting about assessment we can distinguish different forms and different moments. The different levels of assessment may be at an overall, or at an operational levels. The overall level involves the general diagnosis of the system i.e. it involves an analysis of the educational policy so that we are able to judge the choice of priorities and the general results obtained. At the operational level assessment is concerned with the fulfilment of the objectives of a programme or project.

Different forms of assessment involve drawing a distinction between the internal and external effectiveness of educational systems. The former, measures performance in the light of the system itself i.e. success in the final examinations is the primary element of internal effectiveness, although other elements such as costs in relation to results and teacher's performance ought to be taken into account too. On the other hand, when we ask "what is the good of the school?" we are assessing the external effectiveness of the system taken from different points of view - economic, social or cultural. The focus of external effectiveness is on the quality of the output of the educational systems in the light of the needs and hopes of the society and of individuals themselves. We need to ask whether the value added to the individual by the system meets the expectations of society and individuals and whether it leads to progress in the direction of socio-economic and cultural development.

Different levels and forms, however, should be associated with different moments at which assessment can be made, although it should be emphasized that assessment should be a continous process taking due cognizance of the resources needed. Yet in assessing expected outcomes of education, we are not just concerned with testing students for recognition and recall of facts, especially if the programme objectives include more than that, but we are also assessing other outcomes than mere recall of facts. Thus in the final analysis, summative evaluation instruments offer not just operational definition of the matrix of content but also behavioural outcomes of students. To select an appropriate evaluation instrument, however, entails defining something about what the student should learn and to give detailed operational definition of a sample of the problems, questions, tasks, situations etc. to which the student should be able to respond in an appropriate manner. We, therefore, turn to the question of how to get the response from the student i.e. how do we assess expected outcomes.

(d) How do we Assess Expected Outcomes

In education the process of assessment of outcomes starts with the objectives of educational programmes. The main purpose of evaluation is to determine how far the objectives so far set have actually been realized and to this end it is necessary to have assessment procedures that give evidence of the kind of behaviour implied by each of the major educational objectives. But since objectives may be classified according to their cognitive, effective and psychometer content, assessment procedures should be devised in such a way as to sample and test the anticipated behaviour at an appropriate level.

If, then, an educational programme seeks to improve the technical writing skills of students, then the assessment criteria should require the student to demonstrate their proficiency through actual writing of either prose or verse. But it is not easy to measure such outcomes because in life, people, society, job requirements and learning environments change and therefore few assessment procedures have lasting and undiminishing value. But whatever assessment procedure we adopt, it is important to ensure in the students an achievement of minimum competency. Tests designed for the purpose should ensure that:

(1) the content and ability which each test task is intended to measure are important and necessary educational outcomes or adequate indicators of job performance;

(2) the set of test tasks is an adequate sample of the expected outcomes of a student who has completed a given programme;

(3) prepared and qualified students to take the test have sufficient knowledge and ability to respond correctly to each test task; and

(4) the minimum acceptable level of performance on each test task is established by the competent assessment authorities. Such authorities may wish to employ modern assessment techniques such as PERT (Programme Evaluation and Review Techniques) observation techniques and other methods.

Our concern here, however, is to examine three generally used models to assess academic attainment through the popularly known tests or examinations as administered by assessment or examining authorities in many countries viz:

(i) The One-shot Model - this simply measures the status of the group under study at a single point in time. For instance the examination taken at the end of the primary course in which the average scores for each school are compared among schools which presented candidates without taking into account differences in aptitude of the students and the circumstances in which the tests or examinations were administered.

(ii) The Longitudinal Model - which measures the growth of the students as they progress through the system from one grade to another. Success at each examination barrier or grade entails that the expected outcomes of the system have been adequately attained by the students to proceed to the next grade or level. In this model the test will be designed according to the purpose for which it is intended i.e., if the system of education is highly selective for a person to move from one grade to another, such selective measures will be applied; and if it is for placement or guidance the tests will be administered accordingly.

The longitudinal model is useful in guiding teachers towards the students growth in the attainment of objectives and provides indicators as to whether the student is capable of continuing with the programme at the next grade or level.

(iii) The Cross-Sectional Model - since neither the one-shot model nor the longitudinal model are in themselves sufficient measures of expected outcomes, the cross-sectional model can be used as a compromise between them. The model is a test or examination which is given not to the same students but to the current students in the same grade at the same level and the achievement scores used as proxy input to the grade higher than the one being tested. This model does not assess the students individual growth but is used to measure the growth of the school or of the system. It is, therefore, reasonable to argue that this year's students performed better or worse than last year's student and, therefore, should do better or worse at the higher grades.

Many of the usual examinations administered in many countries are designed to show how far a student is above or below the average marks of the group with which he was being compared; and how far the average marks of the class or school were above or below the average or group with which they were being compared. At the same time, there is a marked difference between examinations designed for selection of students to the next grade or level, or those examinations designed to sort out students between the above-average and below-average groups; and test designed to measure how far the objectives of education were achieved. What needs to be stressed here, however, is that while traditional examinations relating to knowledge are usually designed to measure individual differences and to provide exact average marks for classes or schools, assessment exercises should aim at providing information on the overall progress of school children and not merely assemble data on the knowledge of the average child in school.

In Africa, most countries assess the outcomes of education through the traditional examinations or through standardized tests. In general it would appear that there is no difference between the two (traditional examinations and standardized tests), although such a difference appears to be one of form. But since the objectives of assessment pursued by both traditional examinations and standardized tests are different, the main difference between the two must lie in the techniques used. To this end, therefore, examinations tend to judge the pupil in relation to others, whereas, the test tends to judge the manner in which the message had been conveyed.

Whatever measures we prefer to use, (tests or examinations) it must be emphasized that if the main aim of assessment is to determine the acquisition of knowledge and skills and the extent to which the value added by education has been attained, then there is need to select better measuring instruments and not just traditional examinations and tests. Evidence shows, however, that research in the selection of measuring instruments is far from complete. There is need for refinement.

One major problem of assessment of educational outcomes is that assessment of terminal pattern of skills and knowledge of the individual, must also reflect the expectations of society in which the individual, lives or enters. To this effect then, it would be expected that an individual's worth was measurable prior to undergoing an educational process so that upon completion of the educational programme, assessment instruments could measure the value added by computing the difference. But since we do not have such refined instruments to measure such a difference, and because there is generally a lack of clearly defined educational objectives, assessment can only remain superficial, that is, a certificate of performance in conformity with broad objectives as spelt out at national level. Provided the important criteria for assessment instruments are embodied - namely - objectivity, reliability and validity, present assessment procedures will continue to be used until better ones are devised.

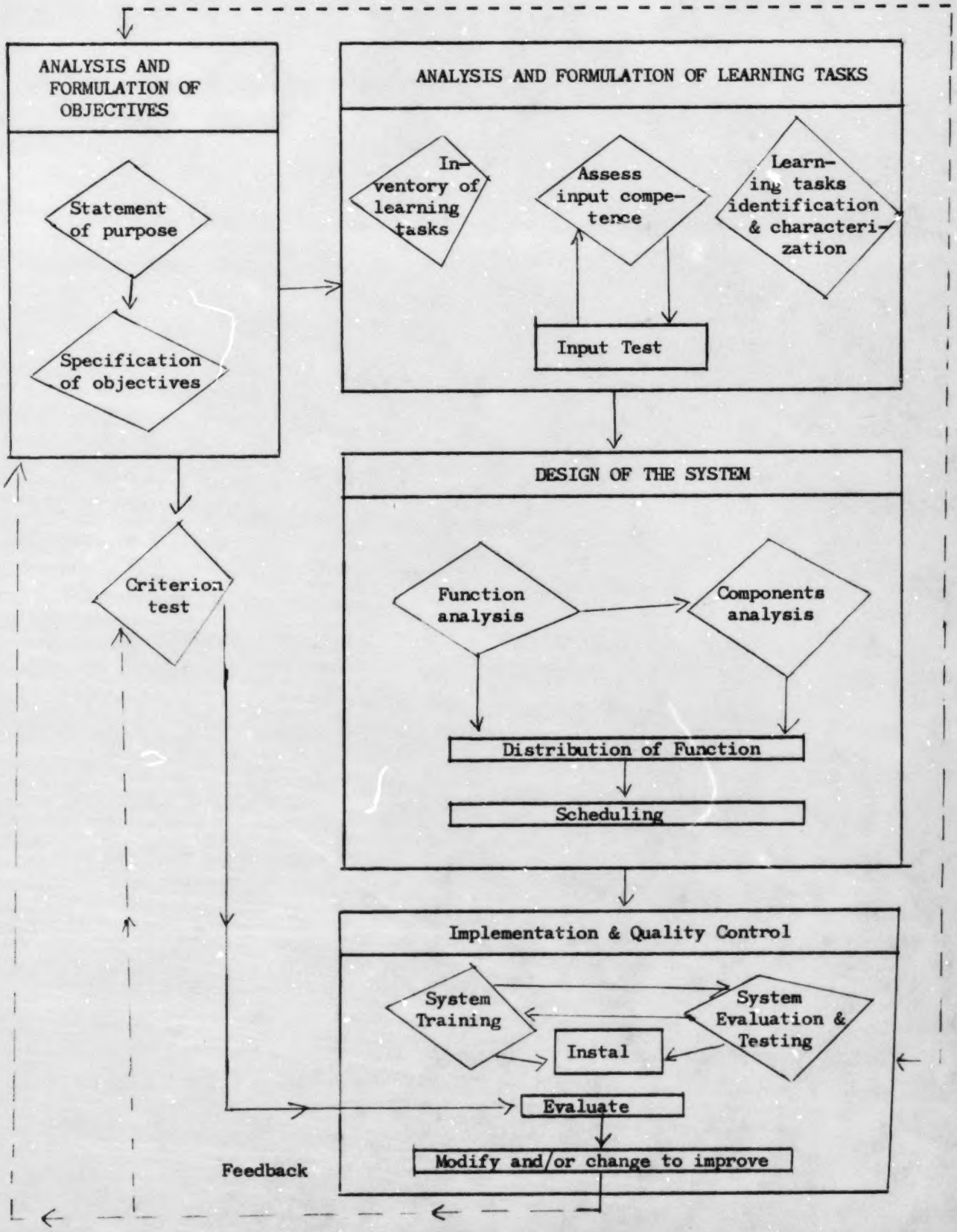
Conclusion

In this paper, it has been argued that the main task of education process is to change the learners in desirable ways. To this end, therefore, we need to define clearly the aims and long-term objectives of educational systems so as to help students change in the right direction. Secondly it has been pointed out that it is the primary task of teachers, administrators and curriculum planners to specify in precise terms the ways in which students will change by the learning process. Further we have argued that teachers are expected to make a series of decisions if they are to effectively help students change in the desired ways. We then postulated that it is the role of evaluation to provide appropriate evidence to help both teachers and learners attain the goals of instructions, and hence the need for assessment. This situation is best explained in diagramatic form as an instructional system design (Annex I), that is a system for learning. It is a decision making operation involving decisions about what should be learned, how, by whom, when and where, how learning should be evaluated and improved and what resources should be involved in preparing and providing for learning.

Thus in assessing student outcomes, we pointed out that evaluation instruments (especially summative evaluation instruments) offer an operational definition of the matrix of content and behaviours. Traditional examinations, therefore, administered at the end of a course or programme tend to be used as an appropriate evaluation instrument to determine what the students have learned by responding

appropriately to questions and task situations given to them. In this way evaluation plays a vital role in providing both the teacher and society with the information needed to determine the extent to which students behaviours have changed. Unfortunately, evaluation techniques and measuring instruments need perfection if we are to derive satisfaction from both the individual's and society's points of view.

Development of Instructional System Design and Its Evaluation



Source: Modified from T.A. Razik - IIEP Lecture Discussion Series No. 45 Figure 10, IIEP Paris, 1969.

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